

Common Assumptions for Water Management Analyses

May 29, 2002

Common Needs

Individual investigations for water management actions described in the CALFED ROD are currently underway. While each of the project investigations address unique purpose and needs, involve different sets of local partners and interests, and are proceeding under distinct timelines, all of these efforts share some common requirements such as:

- Completing feasibility studies
- Tiering from CALFED programmatic environmental documentation to project-specific environmental documentation
- Conducting alternative analyses to comply with CEQA, NEPA, and Clean Water Act Section 404 requirements

To complete the environmental documentation and permitting process each project team must:

- Represent and evaluate CEQA and NEPA no action alternatives
- Characterize likely impacts of the proposed project
- Assess cumulative and incremental impacts of proposed project with other expected projects

Proposal for Assistance

USBR and DWR are proposing a common assumptions process that can help individual project teams move toward implementation. The process will help develop consistency among all of the individual project analyses and improve efficiency by performing once the analyses that all of the individual projects would otherwise have to perform separately. Included will be:

- A set of common assumptions and analyses of no action alternatives that all project investigations can use
- Common descriptions of individual projects
- A set of common assumptions and analyses of cumulative and incremental impacts for all CALFED water supply actions
- Recommendations of performance measures for determining how projects will contribute towards meeting overall CALFED Program objectives

A workgroup will be established to help develop common assumptions and project descriptions. The workgroup will consist of representatives from the USBR Planning Division, the DWR Integrated Storage Investigations team, and representatives from each of the individual project teams.

The workgroup and common assumptions process may also be able to provide assistance in the areas of:

- Performance measures and common analytical tools
- A library of most recent data and model results
- Resolution of conflicts (in assumptions) between individual project teams
- Coordinated purpose and needs statements
- Coordinated ESA approach consistent with CALFED ROD Biological Opinion

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Following is a list of analyses that each of the CALFED water supply project implementation teams may conduct for their proposed action as part of feasibility studies and environmental documentation.

1. CEQA Baseline

Existing conditions as of 2002. Assume 2001 Level of Development. *This analysis is the same for all proposed actions.*

2. NEPA Baseline

Future conditions, without Proposed Action, but with actions that are currently permitted and funded or reasonably foreseeable. Assume 2030 Level of Development. *This analysis is the same for all proposed actions.*

3. Stage 1 Actions Prior to Surface Storage Condition

Future conditions, without Proposed Action, but with CALFED demand management and conjunctive use (Stage 1) actions regardless of their implementation status, and other CALFED (and other) actions that are currently permitted and funded or reasonably foreseeable. Assume 2030 Level of Development. *This analysis is the same for all proposed actions.*

4. Proposed Action (or Alternative)

- A. Future conditions, with Proposed Action (or Alternative), and actions that are currently permitted and funded or reasonably foreseeable. Assume 2030 Level of Development. *This analysis is different for each proposed action.*
- B. Future conditions, with Proposed Action (or Alternative), CALFED demand management and conjunctive use (Stage 1) actions regardless of their implementation status, and CALFED (and other) actions that are currently permitted and funded or reasonably foreseeable. Assume 2030 Level of Development. *This analysis is different for each proposed action.*

5. Cumulative Impacts

Future conditions, with Proposed Action, all other CALFED supply increase and demand management actions, actions that are currently permitted and funded or reasonably foreseeable, and other planned actions that affect CALFED water management. Assume 2030 Level of Development. *This analysis is the same for all proposed actions.*

6. Incremental Impacts

Future conditions, with all CALFED supply increase and demand management actions except the proposed action, actions that are currently permitted and funded or reasonably foreseeable, and other planned actions that affect CALFED water management. Assume 2030 Level of Development. *This analysis is different for each proposed action.*

Notes:

- a. Stage 1 actions prior to surface storage in 3. and 4.B. include land retirement, conservation, recycling, transfers, local projects, and conjunctive use and are summarized in Attachment A. These projects would be analyzed as 4.A. actions, and compared against the CEQA and NEPA Baselines.
- b. Regulatory conditions and operating agreements are the same for all analyses unless a new or modified regulation or agreement is part of the proposed action. Existing regulations and agreements are summarized in Attachment B.
- c. Preliminary descriptions of possible proposed actions are summarized in Attachment C.
- d. Actions that are currently permitted and funded or reasonably foreseeable are summarized in Attachment D.
- e. Other planned actions for cumulative impact analysis that affect CALFED water management are summarized in Attachment E.
- f. Performance measures that will be used for all analyses are summarized in Attachment F.

Common Assumptions for Water Management Analyses

	Existing Conditions, 2001 Level of Development	Future Conditions, 2030 Level of Development	Permitted, Funded, or Foreseeable Projects	All CALFED Demand Management & C.U.	Proposed Action	All CALFED Surface Water Supply Actions	Other Planned Actions
1. CEQA Baseline	X						
2. NEPA Baseline		X	X				
3. Stage 1 Actions Prior to Surface Storage Condition		X	X	X			
4.A. Proposed Action		X	X		X		
4.B. Proposed Action with Stage 1 Actions Prior to Surface Storage		X	X	X	X		
5. Cumulative Impacts		X	X	X	X	X	X
6. Incremental Impacts		X	X	X		X	X

Common Assumptions for Water Management Analyses

June 5, 2002

Proposed Action: Shasta Enlargement Example

	1. CEQA Baseline	2. NEPA Baseline	3. Stage 1 Actions Prior to Surface Storage Condition	4.A. Proposed Action	4.B. Proposed Action with Stage 1 Actions Prior to Surface Storage	5. Cumulative Impacts	6. Incremental Impacts
CALFED Surface Water Supply Actions							
Shasta Enlargement				X	X	X	
Sites Reservoir						X	X
Banks @ 8,500						X?	X?
Banks @ 10,300						X?	X?
In-Delta Storage						X	X
Los Vaqueros						X	X
Intertie						X	X
San Luis Lowpoint						X	X
Friant Enlargement						X	X
Related Actions							
Phase 8			X?			X	X
Dry Year Program			X?			X	X
EWA	X		X?			X	X
CALFED Demand Management and Conjunctive Use Actions							
Land Retirement			X		X	X	X
Conservation			X		X	X	X
Recycling			X		X	X	X
Transfers			X		X	X	X
Local Projects			X		X	X	X
Conjunctive Use			X		X	X	X
Foreseeable Actions							
		X	X	X	X	X	X
Existing Conditions							
	X	X	X	X	X	X	X
Other Planned Actions for Cumulative Impacts							
						X	X

Existing Conditions include:

Trinity @ 815/369 TAF
Post-Wanger b(2)
Existing Facilities

Full JPOD

Existing BO's
Existing Water Rights
Existing Water Quality

Foreseeable Actions include:

Demand Management and Conjunctive Use without CALFED
Local Water Supply Projects

Other Planned Actions for Cumulative Impacts include:

Westlands Land Retirement
Friant/MWD Exchange

Example Attachment B: CEQA Baseline/Existing Conditions

June 6, 2002

INTRODUCTION

This document summarizes the assumptions used in the California Department of Water Resources (DWR)/U. S. Bureau of Reclamation (USBR) joint development of the May 17, 2002, CALSIM II Benchmark Studies. These benchmark studies were developed under the oversight of the CALFED/DWR/USBR Technical Coordination Team. Assumptions related to CVPIA 3406(b)(2) and CALFED's Environmental Water Account are under review and are subject to refinement as these adaptive management programs continue to mature.

This document presents existing conditions assumptions at a level of detail intended for managers and provides a brief overview matrix (Table 1). Additional details regarding these assumptions are also available in supplemental documents: "CALSIM II Model Overview", provides a general description of the CALSIM II model; "Benchmark Studies Assumptions", is intended for technical staff and provides additional information on each of the major assumptions identified in Table 1; and, finally, there are eight documents which contain more detailed descriptions of the technical aspects of the major assumptions and their implementation in the CALSIM II model.

SUMMARY OF MAJOR ASSUMPTIONS

A listing of the major assumptions is provided in Table 1. The information in Table 1 is organized into the following four categories:

- Hydrology
- Facilities
- Regulatory Standards
- Operations Criteria

Table 1: CALSIM II Benchmark Studies Assumptions

	Existing Condition
Period of Simulation	73 years (1922-1994)
HYDROLOGY	
Level of Development (Land Use)	2001 Level, DWR Bulletin 160-98 ¹
Demands	
<u>North of Delta (exc American R)</u>	
CVP	Land Use based, limited by Full Contract
SWP (FRSA)	Land Use based, limited by Full Contract
Non-Project	Land Use based
<u>CVP Refuges</u>	Firm Level 2
<u>American River Basin</u>	
Water rights	2001 ²
CVP	2001 ³
<u>San Joaquin River Basin</u>	
Friant Unit	Regression of historical
Lower Basin	Fixed annual demands
Stanslaus River Basin	New Melones Interim Operations Plan
<u>South of Delta</u>	
CVP	Full Contract
CCWD	140 TAF/YR ⁴
SWP (w/ North Bay Aqueduct)	2.7-3.8 MAF/YR
SWP Interruptible Demand	MWDSC up to 50 TAF/month, Dec-Mar, others up to 84 TAF/month
FACILITIES	
	Existing Facilities (2001)
REGULATORY STANDARDS	
<u>Trinity River</u>	
Minimum Flow below Lewiston	Trinity EIS Preferred Alternative (369-

¹ 2000 Level of Development defined by linearly interpolated values from the 1995 Level of Development and 2020 Level of Development from DWR Bulletin 160-98

² 1998 Level Demands defined in Sacramento Water Forum's EIR with a few updated entries

³ Same as footnote 2

⁴ Delta diversions include operations of Los Vaqueros Reservoir operations

	Existing Condition
Dam	815 TAF/YR)
Trinity Reservoir End-of-September Minimum Storage	Trinity EIS Preferred Alternative (600 TAF as able)
<u>Clear Creek</u>	
Minimum Flow below Whiskeytown Dam	Downstream water rights, 1963 USBR Proposal to USFWS and NPS, and USFWS discretionary use of CVPIA 3406(b)(2)
<u>Upper Sacramento River</u>	
Shasta Lake End-of-September Minimum Storage	SWRCB WR 1993 Winter-run Biological Opinion (1900 TAF)
Minimum Flow below Keswick Dam	Flows for SWRCB WR 90-5 and 1993 Winter-run Biological Opinion temperature control, and USFWS discretionary use of CVPIA 3406(b)(2)
<u>Feather River</u>	
Minimum Flow below Thermalito Diversion Dam	1983 DWR, DFG Agreement (600 CFS)
Minimum Flow below Thermalito Afterbay outlet	1983 DWR, DFG Agreement (1000 – 1700 CFS)
<u>American River</u>	
Minimum Flow below Nimbus Dam	SWRCB D-893 (see accompanying Operations Criteria), and USFWS discretionary use of CVPIA 3406(b)(2)
Minimum Flow at H Street Bridge	SWRCB D-893
<u>Lower Sacramento River</u>	
Minimum Flow near Rio Vista	SWRCB D-1641
<u>Mokelumne River</u>	
Minimum Flow below Camanche Dam	FERC 2916-029, 1996 (Joint Settlement Agreement) (100 – 325 CFS)
Minimum Flow below Woodbridge Diversion Dam	FERC 2916-029, 1996 (Joint Settlement Agreement) (25 – 300 CFS)
<u>Stanislaus River</u>	
Minimum Flow below Goodwin Dam	1987 USBR, DFG agreement , and USFWS discretionary use of CVPIA 3406(b)(2)
Minimum Dissolved Oxygen	SWRCB D-1422
<u>Merced River</u>	
Minimum Flow below Crocker-Huffman Diversion Dam	Davis-Grunsky (180 – 220 CFS, Nov – Mar), and Cowell Agreement
Minimum Flow at Shaffer Bridge	FERC 2179 (25 – 100 CFS)
<u>Tuolumne River</u>	
Minimum Flow at Lagrange Bridge	FERC 2299-024, 1995 (Settlement Agreement) (94 – 301 TAF/YR)
<u>San Joaquin River</u>	
Maximum Salinity near Vernalis	SWRCB D-1641

	Existing Condition
Minimum Flow near Vernalis	SWRCB D-1641, and Vernalis Adaptive Management Program per San Joaquin River Agreement
<u>Sacramento River-San Joaquin River Delta</u>	
Delta Outflow Index (Flow and Salinity)	SWRCB D-1641
Delta Cross Channel Gate Operation	SWRCB D-1641
Delta Exports	SWRCB D-1641, USFWS discretionary use of CVPIA 3406(b)(2), and CALFED Fisheries Agencies discretionary use of EWA
OPERATIONS CRITERIA	
Subsystem	
<u>Upper Sacramento River</u>	
Flow Objective for Navigation (Wilkins Slough)	Discretionary 3,500 – 5,000 CFS based on Lake Shasta storage condition
<u>American River</u>	
Folsom Dam Flood Control	SAFCA, Interim-Reoperation of Folsom Dam, Variable 400/670 (without outlet modifications)
Flow below Nimbus Dam	Discretionary operations criteria corresponding to SWRCB D-893 required minimum flow
Sacramento Water Forum Mitigation Water	None
<u>Stanislaus River</u>	
Flow below Goodwin Dam	1997 New Melones Interim Operations Plan
<u>San Joaquin River</u>	
Flow near Vernalis	San Joaquin River Agreement in support of the Vernalis Adaptive Management Program
System-wide	
<u>CVP Water Allocation</u>	
CVP Settlement and Exchange	100% (75% in Shasta Critical years)
CVP Refuges	100% (75% in Shasta Critical years)
CVP Agriculture	100% - 0% based on supply (reduced by 3406(b)(2) allocation)
CVP Municipal & Industrial	100% - 50% based on supply (reduced by 3406(b)(2) allocation)
<u>SWP Water Allocation</u>	
North of Delta (FRSA)	Contract specific
South of Delta	Based on supply; Monterey Agreement
<u>CVP/SWP Coordinated Operations</u>	
Sharing of Responsibility for In-Basin-Use	1986 Coordinated Operations Agreement

	Existing Condition
Sharing of Surplus Flows	1986 Coordinated Operations Agreement
Sharing of Restricted Export Capacity	Equal sharing of export capacity under SWRCB D-1641; use of CVPIA 3406(b)(2) only restricts CVP exports; EWA use restricts CVP and/or SWP as directed by CALFED Fisheries Agencies
<u>CVPIA 3406(b)(2)</u>	
Allocation	800 TAF/YR (600 TAF/YR in Shasta Critical years)
Actions	1995 WQCP (non-discretionary), Fish flow objectives (Oct-Jan), CVP export reduction (Dec-Jan), VAMP (Apr 15-May 16) CVP export restriction, 3000 CFS CVP export limit in May and June (D1485 Striped Bass continuation), Post (May 16-31) VAMP CVP export restriction, Ramping of CVP export (Jun), Pre (Apr 1-15) VAMP CVP export restriction, CVP export reduction (Feb-Mar), Upstream Releases (Feb-Sep)
Accounting Adjustments	Per February 2002 Interior Decision, no limit on responsibility for non-discretionary D1641 requirements, no Reset with the Storage metric and no Offset with the Release and Export metrics
<u>CALFED Environmental Water Account</u>	
Actions	Total exports restricted to 4000 CFS, 1 wk/mon, Dec-Mar (wet year: 2 wk/mon), VAMP (Apr 15- May 16) export restriction, Pre (Apr 1-15) and Post (May 16-31) VAMP export restriction, Ramping of export (Jun)
Assets	50% of use of JPOD, 50% of any CVPIA 3406(b)(2) releases pumped by SWP, flexing of Delta Export/Inflow Ratio (not explicitly modeled), dedicated 500 CFS increase of Jul – Sep Banks PP capacity, north-of-Delta (0 - 135 TAF/Yr) and south-of-Delta purchases (50 - 185 TAF/Yr), and 200 TAF/YR south-of-Delta groundwater storage capacity
Debt restrictions	No planned carryover of debt past Sep, asset carryover allowed